April 25, 2003

Edmund T. Parker, Jr. P.E.
Rhode Island Department of Transportation
Two Capital Hill
Providence, Rhode Island 02903

RE: Draft Supplemental Environmental Impact Statement for the Jamestown Bridge Replacement Project, North Kingstown and Jamestown, Rhode Island

Dear Mr. Parker:

The Environmental Protection Agency-New England Region (EPA) has reviewed the Federal Highway Administration's (FHWA)/Rhode Island Department of Transportation's (RIDOT) Draft Supplemental Environmental Impact Statement (DSEIS) for the consideration of the impacts of removal alternatives for the old Jamestown Bridge in North Kingstown and Jamestown, Rhode Island. We submit the following comments in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The removal of the old Jamestown Bridge was planned as part of the Jamestown Bridge Replacement project in 1992. The DSEIS describes the bridge demolition process and examines three disposal alternatives: disposal of all bridge debris at a landfill; an artificial reef alternative that includes disposal of bridge debris (both concrete and steel) offshore to create artificial reefs; and a hybrid artificial reef alternative that would include disposal of steel debris at a landfill and disposal of the concrete debris in the ocean to create artificial reefs. The DSEIS identifies the artificial reef alternative as the preferred alternative. The DSEIS describes a proposal for a series of artificial reefs intended to create and enhance marine habitat and which would provide opportunities to enhance recreational angling and sport diving.

While we have no objection to the project, we have included a number of questions and concerns in the attachment to this letter we believe should be addressed in the FEIS to more fully describe the nature of the impacts of the project. In particular, we believe additional information should be provided to more fully describe flora and fauna in the project area and the existing conditions at the candidate reef sites; to document the impacts associated with both the demolition and disposal phases of the project; and to address air quality issues associated with the work.

Based on the concerns identified in the attachment and in accordance with our national system, we rate this project as EC-2 ("Environmental Concerns-Insufficient Information"); please see the attached sheet for an explanation of this rating. We look forward to reviewing the information

we requested in this letter in the FEIS for this project. Please contact Timothy Timmermann of EPA's Office of Environmental Review at 617/918-1025 with any questions you may have about our comments on the DSEIS or if you would like to meet with us to discuss our comments and concerns in greater detail.

Sincerely,

Robert W. Varney
Regional Administrator

attachment
cc:

Daniel J. Berman, Assistant Division Administrator
Federal Highway Administration
380 Westminster Mall
Providence, Rhode Island 02903

Technical Attachment to DSEIS for the Jamestown Bridge Replacement Project

Composition of Flora and Fauna

We offer the following comments to help RIDOT/FHWA to more fully describe the flora and fauna in project areas that may be impacted. We believe the inclusion of this information will help RIOT/FHA to better determine the environmental impacts of the various alternatives.

Eelgrass

The DSEIS states that eelgrass (*Zostera marina*) is limited to depths of only a few meters, even in typically clear water. With respect to this point we note that while the depth at which eelgrass can survive probably decreases as one moves up into the bay, eelgrass is commonly found in the lower bay at 30 feet, and observations of eelgrass growing at 40 feet along the outer coast have been reported. In fact, the dive survey conducted in support of investigating potential artificial reef sites for this DSEIS (Appendix E) identified eelgrass off Prudence Island in 15-25 feet of water.

Demersal Fish

Table 4 of the DSEIS identifies the 10 most abundant demersal fish species in Narragansett Bay based on trawl surveys conducted by the Rhode Island Department of Fisheries and Wildlife, but three of the species are not finfish. Given that the presence of an air bladder makes a fish more vulnerable to the adverse effects of underwater blasts and that none of the non-fish species (lobster, horseshoe crab, and longfin squid) have air bladders, it would be more helpful in understanding potential impacts to identify fish species that are most vulnerable to underwater blasting. Bay-wide species relative abundance data offer limited information on what species are likely to be in close proximity to the bridge at the time of blasting and which species in particular are most vulnerable. Even trawl data collected off Fox Island, which is 1.5 nautical miles from the bridge, may not accurately represent the finfish diversity or relative abundance found around the bridge. Fast moving predator species such as bluefish, weakfish, and striped bass tend to be under-represented in trawl data, and as the DSEIS accurately points out in the discussion about artificial reefs, structure attracts fish.

Description of Existing Conditions at Candidate Sites for Artificial Reefs

The DSEIS provides a limited description of the existing conditions at the candidate reef sites (e.g., substrate type, current velocity, water depth), but except for a couple of sites that were eliminated due to the presence of eelgrass vegetation, there is no habitat assessment for the five sites that were selected. We believe this type of information is an important part of the site selection process that should be reflected in the FEIS.

From the information provided in the DSEIS, it appears that all of the candidate reef sites, except perhaps the Block Island Hole site, have relatively high value as fish and lobster habitat. The loss of existing habitat, combined with impacts associated with increased fishing pressure and dive activity must be weighed against any increase in habitat value that may be afforded by the placement of bridge material at these sites. The DSEIS does not provide enough information to fully explain how many of these sites were selected even though it appears they already could be characterized as providing meaningful habitat value. Specifically,

- the DSEIS describes the existing substrate at the two candidate sites in proximity to Newport (Goosebury Island and Sheep Point) as consisting of a mix of sand and small boulders (Goosebury Is.) or rock and small boulders (Sheep Point). These heterogeneous bottoms tend to have higher habitat value than homogeneous sand bottoms. The fact that striped bass and tautog - especially tautog which is particularly structure-oriented - are known to frequent these areas, as the DSEIS indicates, would support the view that these areas already have considerable fish habitat value;

- the Black Point site off Scarborough Beach is comprised of hard sand and small boulders, which offers substrate complexity often sought by juvenile fish and lobster;

- the substrate at the Twin Boulders site, south of Point Judith, is described in the DSEIS as sands, gravel, cobbles, and boulders. This area represents a highly complex substrate that is desirable for juvenile finfish and lobster, as well as adults. The Block Island Hole described in the DSEIS both as "sand and dense mud" (pg. 14), and "hard sands" (pg. 74, Appendix C). The selection of this site is questionable based on the established substrate siting criteria if it is comprised of muds of any consistency. Based on water depth, current velocities, and substrate type of the surrounding area, a reef located in this site, if it does not encounter settlement problems, would probably attract larger fish, but may not provide much habitat value for juvenile finfish.

FHWA/RIDOT should also be aware that the EPA, in coordination with the Army Corps of Engineers is in the process of developing an EIS that will explore long term disposal options (including near shore sites, sites in Rhode Island Sound and terrestrial options) for dredged material from Rhode Island waters. We suggest that you coordinate directly with Olga Guza, of EPA's Office of Environmental Protection at 617-918-1542 to learn more about that ongoing effort.

Environmental Impacts of Bridge Demolition

Work Window

The DSEIS seems to make a case for conducting blasting activities during the winter months when fewer fish and other aquatic animals are present in the bay, but it then suggests that working during the winter would cause greater long-term ecosystem impacts because the activity will take longer to complete, presumably due to weather constraints. The DSEIS does not present a convincing argument that work will take longer during the winter, or that the associated

environmental impacts will be greater. As examples of increased environmental impacts, the DSEIS identifies the possible presence of winter flounder and lobster. While these two species have significant commercial value and warrant protection, the DSEIS argues earlier (in Section 4.0) that species lacking swim bladders, such as winter flounder and lobsters, are not at risk to the effects of underwater blasting. In fact, flounder (and probably lobster) are excluded from the calculated fish mortality estimates provided in Table 6 (pg. 35). Coordination with state and federal resource agencies should be conducted to ensure that aquatic species most vulnerable to the effects of blasting are protected.

Effects of Underwater Blasting

It is unclear how many blasts will occur, how often, and whether all charges set will be "confined" blasts. The data provided on fish mortality associated with underwater blasting provides a sense of the spatial extent of lethal effects, but does not address sub-lethal effects beyond the kill zone, and the cumulative effects of multiple blasts. Unlike controlled conditions during laboratory studies, small fish that are stunned or suffer temporary equilibrium loss would be highly vulnerable to predation from sea birds and predatory fish. Also, predictions of fish mortality may offer a sense of seasonal variations in fish abundance, but do not provide a realistic basis for the actual numbers that may killed by this activity. For example, schools of bluefish and striped bass commonly pursue schools of young menhaden in Narragansett Bay during summer and fall. If this activity occurs near the bridge abutments during demolition thousands of fish could be lost.

It appears that fish larvae are not factored into the mortality estimates. The DSEIS assumes fish larvae, the most delicate lifestage of a fish, is not likely to be affected by underwater blasts because swim bladders have not yet developed. However, on page 37, the safe exposure for fish larvae with swim bladders is stated to be 1 psi-msec. The loss of early life-stage fish should be factored into any mortality estimate. The predicted fish mortality should better reflect a worst-case scenario by factoring in non-lethal impairment and early life-stage mortality.

The loss of fish, shellfish, and other aquatic animals from this activity, while not likely to cause bay-wide population declines, should be minimized by every reasonable means available. The DSEIS ruled out the use of bubble systems to minimize the shock wave and silt curtains to reduce siltation despite the fact that both have been demonstrated to be effective. The DSEIS refers to problems with deep water and strong currents at the Wilmington Harbor 96 Act Project. Water depths along most of the Jamestown Bridge are less than 20 feet deep with peak tidal currents ranging between 0.25 and 0.50m/sec (.5 m/sec roughly equals 1 nm/hour, or 1 knot). Given the relatively shallow water and manageable currents, RIDOT/FHWA should reconsider deployment of silt curtains or bubble systems.

Material Containing Lead and Arsenic

Sediment sampling conducted beneath the bridge revealed elevated levels of lead in 29% of the samples (7 of 20) and elevated arsenic levels in 25% (5 of 20) of the samples. The DSEIS states that any material that poses a threat to the marine environment shall be removed and disposed of properly before operations may proceed. The DSEIS does not explain if the spatial extent of

contaminated sediments will be more thoroughly delineated, when dredging would take place, and by what means. The resuspension of sediments is potentially more problematic if they are contaminated. The FEIS should explain how contaminated sediments will be removed and at what point in the demolition/dismantling process. The use of silt curtains is strongly recommended if sediments subject to resuspension during bridge demolition are contaminated with elevated levels of toxic pollutants.

Environmental Impacts of Disposal of Bridge Demolition Debris in Marine Waters

Enhancement of the Marine Environment

The DSEIS does not provide enough information to provide a complete basis to suggest that the placement of bridge demolition debris in Rhode Island waters will enhance the marine environment. Artificial structures tend to attract and concentrate forage and prey species, which in turn attracts fishermen and divers. There is a clear benefit to recreational fishermen, divers, and possibly fixed-gear commercial fishermen who can more easily find fish and lobster, though the three activities are not always compatible in a spatially-limited location. The claim that these reefs will actually benefit the marine environment is more dubious. While depositing steel girders, truss spans, and concrete rubble will certainly attract organisms to these anomalous seafloor features, the DSEIS provides no evidence to support the claim that these structures will "serve to recharge local [fish] populations for commercial harvest." Based on the configurations plans presented in the DSEIS, much of the reef will be comprised of long, open, flat surfaces–areas that do not appear to provide particularly desirable habitat for juvenile fish or lobster. The artificial reefs will offer some refuge and forage opportunities to organisms attracted to structure, while displacing species that preferred the original habitat. Fish will be easier to locate and catch, which tends to be better for fishermen than for fish.

Shallow water reefs designated as "refuge habitat" for the benefit of juvenile finfish could provide preferred refugia if properly designed. However, as the DSEIS points out, fishing should be banned or restricted in such areas, and "diligent monitoring" would be required to ensure various user groups do not adversely impact reef resources. The DSEIS does not include any follow-up monitoring to assess the biological response to the placement of the bridge material, and it is unclear if the shallow water reef sites would receive any protection from fishing pressure under state laws. A multi-year monitoring plan designed to assess the use of the artificial reefs by juvenile fish and lobster would help verify claims that this material placement enhances a particular fishery, or the local marine ecosystem.

Recreational Diving

As a preferred dive destination, a site comprised of bridge remnants and piles of concrete, while a novelty and likely to attract fish, doesn't necessarily compare favorably to the many natural rock outcrops, ledges, and ship wrecks in New England. Any correlation between the popularity/tourism dollars of artificial reefs and wrecks of areas off southern and mid-Atlantic states (where submerged features and hard substrate are relatively scarce) and artificial reefs in New England waters should be carefully developed.

Air Quality

The DSEIS indicates that there are no long term air quality impacts associated with the project. While EPA agrees with this conclusion, we believe the FEIS should provide additional information to explain the likely short term air quality impacts and how they will be addressed. Specifically, we believe the air quality analysis in the FEIS should be supplemented to address truck traffic, diesel retrofits and conformity issues.

Truck traffic

It is unclear how many trucks will be operating on the site at any given time, but regardless of the number, the project should consider the reduction of unnecessary vehicle idling. In addition, removing the infrastructure of the old bridge will create substantial dust, and dust mitigation should be addressed in the FEIS. Moreover, there will be a large amount of traffic in and out of the demolition area if any demolition debris is shipped to the central landfill. The FEIS should include a traffic analysis including an estimate of the number of vehicle trips in and out of the facility and potential air quality and traffic impacts on surrounding communities.

Diesel retrofits

RIDOT and FHWA should explore the feasibility of incorporating diesel retrofits to reduce potential adverse air impacts, as emissions from diesel engines can be controlled with retrofit pollution control equipment. Retrofit control equipment includes either oxidation catalysts or particulate filters installed on the exhaust of the diesel engine designed to reduce particulate matter, hydrocarbon and carbon monoxide emissions. The particulate filters are cost effective and offer an efficient means of reducing PM emissions. However, particulate filters require the use of ultra low sulfur diesel fuel which oxidation catalysts do not. Retrofits have been successfully applied to thousands of diesel engines across the country.

There are many mechanisms to encourage the use of these controls, such as through contract specifications or other means. Oxidation catalysts can be installed for from $1000 to $2000 dollars per vehicle. Therefore, we recommend that this objective be part of the project.

Conformity

This project is located in the Rhode Island one hour ozone nonattainment area and is subject to section 176(c) of the Clean Air Act as amended (42 U.S.C. 7401 *et seq*.); "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (58 FR 63214, November 30, 1993). A General Conformity analysis is triggered if either (1) the *de minimus* limits described in the rule are exceeded, or (2) the project will emit ten percent of the total emissions of the pollutant of concern in the nonattainment or maintenance area.

To determine if general conformity is applicable, an air quality analysis must be conducted. A general conformity determination is required for this project if this mesoscale air quality analysis indicates that the emissions caused by this project equals or exceed 50 tons per year of either volatile organic compounds or oxides of nitrogen. Should any criterion pollutant trigger conformity, then state and local air agencies must be consulted with to determine the appropriate

criteria in 40 CFR section 51.858 of EPA's general conformity rule that should be use to demonstrate conformity. Demolition, hauling of material, dumping procedures, and truck traffic would be subject to general conformity.

However, it is possible that the demolition of the old bridge was incorporated into a transportation conformity analysis since project inception in the early 1980's. If so, then the demolition project would be exempt from general conformity. Therefore, it is incumbent upon RIDOT/FHWA to provide this information as part of the FEIS or complete a general conformity analysis. Any specific questions about the conformity analysis or any other component of the air quality analysis should be directed to Jeffery Butensky of EPA New England's Air Quality Unit at 617/918-1665.